

B. Amendments to the Claims

This listing of claims will replace the version of claims in the application, as originally filed:

Claim 1 (original): A lamp comprising:

(a) a waveguide having a body of a preselected shape and dimensions, the body comprising at least one dielectric material and having at least one surface determined by a waveguide outer surface, each said material having a dielectric constant greater than approximately 2;

(b) a first microwave probe positioned within and in intimate contact with the body, adapted to couple microwave energy into the body from a microwave source having an output and an input and operating within a frequency range from about 0.5 to about 30 GHz at a preselected frequency and intensity, the probe connected to the source output, said frequency and intensity and said body shape and dimensions selected so that the body resonates in at least one resonant mode having at least one electric field maximum;

(c) the body having at least one lamp chamber depending, respectively, from at least one said waveguide outer surface, each chamber at a location corresponding to an electric field maximum during operation; and

(d) a gas-fill in each chamber which when receiving microwave energy from the resonating body forms a light-emitting plasma.

Claim 2 (original): The lamp of claim 1 wherein each said dielectric material is a solid material.

Claim 3 (original): The lamp of claim 1 wherein each said dielectric material is a liquid material.

Claim 4 (original): The lamp of claim 1 wherein each said dielectric material is selected from the group consisting of solid materials having a dielectric constant greater than approximately 2, and liquid materials having a dielectric constant greater than approximately 2.

Claim 5 (original): The lamp of claim 2 or 3 or 4, wherein each said dielectric material has a loss tangent less than approximately 0.01.

Claim 6 (original): The lamp of claim 2 or 3 or 4, wherein each said dielectric material has a thermal shock resistance quantified by a failure temperature greater than approximately 200°C.

Claim 7 (original): The lamp of claim 2 or 3 or 4, wherein each said dielectric material has a DC breakdown threshold greater than approximately 200 kilovolts/inch.

Claim 8 (original): The lamp of claim 2 or 3 or 4, wherein each said dielectric material has a coefficient of thermal expansion less than approximately $10^{-5}/^{\circ}\text{C}$.

Claim 9 (original): The lamp of claim 2 or 3 or 4, wherein the dielectric constant of each said dielectric material has a zero or slightly negative temperature coefficient.

Claim 10 (original): The lamp of claim 2 or 3 or 4, wherein each said dielectric material has stoichiometric stability over a temperature range of about -80°C to about 1000°C.

Claim 11 (original): The lamp of claim 2 or 3 or 4, wherein each said dielectric material has a thermal conductivity of approximately 2 W/mK (watts per milliKelvin).

Claim 12 (original): The lamp of claim 2 or 3 or 4, wherein at least one waveguide outer surface has an outer coating of a metallic material.

Claim 13 (original): The lamp of claim 12 wherein a plurality of heat-sinking fins are attached to at least one said metallic outer coating.

Claim 14 (original): The lamp of claim 2 or 3 or 4, wherein the gas-fill in at least one said lamp chamber is contained within a bulb envelope comprising a surrounding wall hermetically coupled to a window covering the chamber, the window substantially transparent to the light emitted by the plasma.